

Cognitive Functioning and Psychological Processing
Definitions, Areas of Impact, and Recommended Strategies/Accommodations

Executive Functioning (EF)

Definition: Executive function is an umbrella term for complex cognitive processes that service on-going, goal-directed behaviors, all of which help us to learn efficiently and develop important social skills. EF includes the brain-based functions that involve mental control and self-regulation. EF guides the management of our internal resources to achieve a goal. Cognitive components of EF include but are not limited to, planning, organizing, attention control, self-monitoring, initiation, and cognitive flexibility.

Because of the overarching nature of executive functioning, deficits in this area can be impactful on an individual's performance even in the absence of deficits in other processing areas such as memory, processing speed, fluid reasoning, etc. However, executive functioning deficits may also serve to further compound deficits in other processing areas resulting in significant challenges in academic and social skill acquisition and performance.

Examples of data needed to establish an executive function deficit may include, classroom and clinical observations, teacher, parent, and self-report rating scales (i.e., BRIEF, Conners, BASC), cognitive/neuropsychological standardized tests (i.e., WJ Cog, WISC, NEPSY, D-KEFS), and tests of attention and concentration such as continuous performance tests. As with any determination of SLD, a preponderance of evidence is needed to support the identification of an executive function deficit.

What special educators need to know about EF

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| <ul style="list-style-type: none">• Executive skills are developmental, beginning to develop in early infancy and continuing to develop up to and beyond the 20's. Early in development, it is the job of the adults to act as children's frontal lobes (install gates to stairways, put certain items out of sight/reach). Thus, executive skills are first experienced as external to the child, as adults direct their behavior. Children then mimic the executive functions of the adults they observe and eventually make more independent decisions to regulate their own behavior in the absence of adults.• Since executive skills are developmental, the first thing to ask when a student has difficulty with executive functioning is whether or not the child has been taken through this progression, from direct instruction in the skill to supervision in use of the skill, providing cues for using the skill, and eventually independent use of the skill.• EF delays and impairments are common in children/teens with some neuro-biological disorders and disabilities-particularly ADHD but also in Learning Disabilities and Autism Spectrum Disorder. | <ul style="list-style-type: none">• Research indicates that children and teens with ADHD have a developmental delay of approximately 30% in EF skills; affecting their behavior and self-management. So, expect a 10 year old with ADHD to have the EF maturity of a 7 year old.• Students with an EF impairment can often be unfairly perceived or labeled as "lazy," unmotivated or simply as "not trying hard enough." This is not the case. Those behaviors that frustrate teachers and parents (chronic lateness, disorganization, missing assignments, poor work production) are not deliberate, but part of their disability.• Students with EF impairments typically need supportive strategies, environmental modifications and/or accommodations for school success.• EF weaknesses commonly cause academic challenges to some degree (mild to severe), regardless of how intelligent, gifted and capable the person may be.• All students benefit from learning strategies to build and strengthen EF skills. |
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Planning/Prioritizing

Definition: The ability to create and sequence steps to reach a goal including decision-making about the relative importance of those steps.

Common Difficulties

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| <ul style="list-style-type: none"> • Performing complicated, multi-part tasks • Planning and setting priorities • Independently imposing structure, order, or ideas • Thinking about steps and materials required in achieving a goal • Estimating complexity and time requirements for assignments or tasks • Planning and allocating time to steps involved in assignments or tasks • Figuring out which details are critical and which details can be ignored | <ul style="list-style-type: none"> • Estimating how much time to spend on reading and research versus output (e.g., to write a paper, to edit, and to layout) • Separating main ideas from details on assignments or tasks • Identifying what needs to be done • Knowing how to accomplish steps to complete assignments or tasks • Appearing inattentive and disorganized • Meeting deadlines, being on time for appointments, and not over scheduling |
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| <ul style="list-style-type: none"> ○ Involve child in development of plans ○ Involve child to express opinions/preferences so they will use organizational method ○ Set a goal for activity or task. Have the student predict how well he/she will do in completing it. Structure planning/organization efforts around the stated goal. ○ Verbalize a plan of approach by breaking down into steps, arrange in sequential order, and written down in bullet list; guided interactively with parent/teacher ○ Develop more than one plan/activity (e.g., write an introductory paragraph or start with a detailed outline to write paragraphs for the body of text first, and then provide an introduction). ○ Help students make plans with leading questions and prompts: “What is most important?” “What do you need to do first?” “What would happen if you don't get done?” ○ List steps needed to complete long-term projects. ○ Have the student rank lists of tasks/information/items in order of importance. ○ Prioritize homework by due dates, difficulty or level of stress about the tasks. Have the student make long and short-term “to do” lists and designate the most important or time-sensitive items on each list (with an asterisk * or color-highlight). | <ul style="list-style-type: none"> ○ Teach the student to categorize tasks—placing under Must Do, Would Like to Do, or Priority level: High/Moderate/Low. ○ Provide frequent practice distinguishing between main/less relevant information, ideas, or events. ○ Practice planning by using everyday tasks ○ Plan a few steps to begin then increase as student learns the first ones ○ Develop familiar, comfortable routines ○ Collaboration between teacher/child/parent ○ Lead by honest example ○ Show how to organize in own life (e.g., shopping list, datebook or apps) ○ Talk with the child about personal organization systems and what works or does not work ○ Use a planner to visual remind what needs to be completed ○ Sequence tasks logically (e.g. alphabetize vocabulary words 1st before looking up in dictionary) ○ Before starting work, review homework and gather materials ○ Store most commonly used items within easy reach in accessible locations ○ Offer organizational frameworks in advance to help students mentally organize new material |
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Working Memory		
Definition: The ability to hold information in mind long enough to solve a problem and/or complete a task.		
Common Difficulties		
<ul style="list-style-type: none"> • Short attention span; trouble concentrating on tasks; easily distracted • Remembering to bring necessary books and materials from school to home and back again • Remembering to check and correct errors when writing papers, taking tests, or doing homework • Performing consistently across situations, content areas, and tasks • Studying strategically so that complex information is retained over time (e.g., students remember facts and spelling for quizzes and tests, but do not connect concepts and cannot juggle the information mentally so they can access this information on a long-term basis) • Remembering multistep instructions and/or tasks (e.g., students falter when a task requires that they remember a series of directions, generate ideas in response to the directions and then express their ideas) • Remembering and applying crucial information in order to move to the next step of a task • Remembering to hand in completed assignments on time (e.g., students with executive function difficulties often leave school with their homework still in their bags) • Information just doesn't "stick" for them 		
Environmental Modifications – Elementary		Teaching Skills - Elementary
Environmental Modifications – Secondary		Teaching Skills - Secondary
<ul style="list-style-type: none"> ○ Acronyms ○ Crazy Phrases ○ Chunk ○ Attach Meaning ○ Rehearse ○ Brainstorm key words & phrases in advance ○ Lists of charts of common transition words & phrases ○ Lists of sentence starters ○ Visual representations ○ Underline direction words ○ Number steps ○ Underline question ○ Color highlighting ○ Designated class note-taker ○ Recording of lectures ○ Access to Power Points ○ Word banks ○ Visual checklists ○ To-Do lists ○ Graphic organizers 	<ul style="list-style-type: none"> ○ Beginning of day meeting to organize the day ○ Establish eye contact before essential directions ○ Lengthened rate of presentation of new material ○ Break material into smaller chunks. ○ Frequent task changes ○ Frequent, short breaks, particularly with motor or relaxing activities ○ Do a few; then check with me ○ Reduce environmental distractions ○ Increased supervision ○ Place him in the middle of activities ○ Pre-organize information ○ Additional 'think time; to retrieve information ○ New information kept brief and repeated ○ Written checklist of steps. ○ Repeat instructions 	<ul style="list-style-type: none"> ○ Present information in multiple formats (visual, kinesthetic, etc) ○ Teach self-talk strategies ○ Teach active listening skills ○ Mnemonic devices ○ Chunk information ○ Rehearsal ○ Attend to detail ○ Can I review? Can I recite? Can I record? Can I picture it? ○ Who, what, when, where, why ○ Chapter summary organizer ○ Title & why ○ Margin notes, post-it notes, text codes ○ BOTE (Brainstorm, Organize, Topic sentence, Evidence, Conclusion) ○ Pieces of a Thesis ○ ISA (Introduce, State, Analyze) – for quotes ○ SPORTS (Sentence structure, Punctuation, Organization, Repetition, Tenses, Spelling) for editing ○ Strategy notebooks

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Organization	
Definition: The ability to create structure or order of one's materials, space, or ideas, and make a system for completing a task or reaching a goal.	
Common Difficulties <ol style="list-style-type: none"> Organizing ideas <ul style="list-style-type: none"> Has good ideas but can't get them on paper Cannot identify key ideas/summarize Gets caught up in details & misses the big picture Underestimates the time needed to finish tasks Does not finish long-term projects Tests poorly, even when s/he knows the correct answers Written work is poorly organized Does not understand relationship between behavior & consequences Organizational skills don't improve in response to consequences (i.e. failing grade for not turning in homework) May understand the value of organization, but unable to learn or apply skills 	<ol style="list-style-type: none"> Organizing materials <ul style="list-style-type: none"> Difficulty using charts & graphic organizers without explicit instruction Does not/forgets to bring homework, assignment sheets, materials, even when completed Starts assignments or chores at the last minute Does not come prepared for class Loses lunchbox, lunch money, permission slips, homework, etc. Organizing workspace <ul style="list-style-type: none"> Cannot find clothes, glasses, shoes, toys, books, pencils, etc. Backpack is disorganized Cannot find things in room or school desk Leaves a trail of belongings wherever s/he goes Leaves messes that others have to clean up Has a messy desk
Materials <ul style="list-style-type: none"> To organize notebooks decide on places to keep unfinished homework, completed homework, papers that need to be filed, handouts, notes, etc. Use colored folders for different subjects, for completed assignments, unfinished work, etc. Provide a set of books at home. Provide essential information that is written or typed and placed in a plastic sheet protector at the front of the student's binder or day planner for easy access. This can include important phone numbers, schedule, websites, etc. There are many options for ways to organize material including by date, by subject, or by priority. Deciding on one method and devise a system, such as separate color-coded tabs for each subject, is important. In using an assignment sheet or day planner, before leaving each class, have the student show the teacher what has been written down as an assignment. The teacher can initial the assignment to indicate that it is correct and complete. The parents can then review the assignment with the student and initial that each assignment has been completed. Limit the number of materials on a student desk or work area Use color to help organize, such as color coordinating by subject area. Perform periodic spot-checks and provide rewards for organization (of desks, workspace, notebooks). 	<ul style="list-style-type: none"> Provide handouts already 3-hole punched for easy filing in binder. Allow the student to use an accordion folder as an alternative to 3-ring notebook if this is more manageable. Provide time and direct adult assistance with cleaning and organizing (desks, notebooks, and lockers). Use task boxes which contain all needed materials for specific activities. Try file sharing software like Dropbox to keep notes handy anywhere there's an internet connection. Consider smartphone apps that serve as digital sticky notes or bulletin boards. Use digital flashcards, also available as applications. Consider password manager software to keep track of passwords. Help kids identify a regular time during the week for cleaning out and organizing their backpack. Work together to make this a pleasant experience so that it becomes a habit. Use a brightly colored folder to bring important papers (like homework and permission slips) to and from school, so those items don't get lost. Keep reference materials, including calculators, dictionaries, and atlases near the child's homework workspace. Encourage the student to have a back-up file of work, and to save all handouts, quizzes, etc. at least until the grading period ends. Provide sufficient time at the end of class or between subjects to get organized.

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Definition: The ability to create structure or order of one's materials, space, or ideas, and make a system for completing a task or reaching a goal.

Checklists

- Make a checklist of what the student needs to do at the end of the day (classwork and homework handed in, day planner filled in, materials that need to go home for homework, other things that need to go home)
- Make a checklist of materials needed for different activities.

Assignments

- For long-term projects provide a list of smaller parts to be completed with deadlines for completion of each portion.
- Separate worksheets into smaller problem sets, or divided on the page with a marker and prioritized for approach.
- Provide direct assistance and support at the planning/pre-writing stage of written assignment or projects (generating and organizing ideas).

Environment

- Organize the classroom with clearly labeled shelves, files, and bins.
- Display models or visual depictions of well-organized workspace, papers, project boards, etc.
- An organized workspace helps children find the materials they need for homework easily and independently. Storing material in different sections is helpful. For example, all writing tools should be located together.
- Provide visual reminders (poster or card on desk) showing steps to get organized at the end of the period/day, before leaving class.

Lessons

- Call attention to the structure of new information at the outset of a lesson.
- Provide an outline or list of major points before the lesson.

Rewards

- Monitor and reward when the student uses organizational tools/meets organizational goals.

Skills/Teaching

- By the upper elementary level, implement a school-wide program such as Skills for School Success (www.curriculumassociates.com).
- Use software such as Kidspiration or Inspiration for developing ideas and organizing thinking (www.inspiration.com).
- Explicitly teach model, and practice organizational skills.
- Teach your child to think of a long-term project as a "mental movie" by breaking complex tasks into manageable chunks (like movie scenes). Use a white board or paper to map tasks into flowcharts.
- Teach use of a daily planner and check that it is being used correctly.
- For reading strategies, teach strategic approaches. For example, teach the student to examine the chapter outline or list of headings, then read the chapter summary and focus questions before approaching the body of the text.
- Teach strategic approaches to structured writing tasks. A "cookbook" or methods for responding to basic types of writing tasks (e.g., short answer, short essay, expository paper) can be developed. The student may need to learn what goes in the first sentence or paragraph, what goes in the second and so on.
- Use a family calendar to record important commitments. Weekly family meetings can help coordinate everyone's schedules so that you model good planning and organizational strategies.
- Help the child select calendars (paper or electronic) that can be updated with commitments and tasks whenever you update the family calendar. Encourage your child to review these calendars daily to anticipate new events.
- Encourage your child to write down important tasks in a calendar and to allocate time accordingly. You can teach your child to estimate the time each task will take and to track the time while working. Help kids make lists of homework assignments or chores. Let them experience the satisfaction of checking off tasks as they're completed.

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Time Management

Definition: The ability to determine how long things take, how much time one has, how to allocate it, and how to stay within time limits/deadlines.

Common Difficulties:

- Has difficulty completing tasks on time
- Misses deadlines for assignments
- Has difficulty estimating how long it takes to do something
- Cannot adjust schedule to fit in new tasks, special events
- Cannot complete routines consistently on time
- Has difficulty judging the passage of time
- Underestimates how much time a task will take

- For late work, reconsider giving a zero grade (which is almost impossible to recover from). Lowering by one letter grade (C instead of B) is a sufficient consequence.
- Communicate the clear expectation that all assignments must be recorded on planner/calendar/assignment sheet. Be consistent and make recording assignments a priority—modeling, walking through, and monitoring the process. Have table partners check each other's assignment calendar.
- Post all schedules and refer to them frequently.
- Break long-term assignments (book reports, research projects) into a series of smaller steps. Assign incremental due dates to structure the timeline towards project completion.
- If tardiness is an issue, try an individual contract or include “on time to class” on a daily monitoring form with an incentive.
- Provide praise and/or other positive reinforcement for meeting due dates.
- Coordinate with colleagues to stagger due dates of major projects/ assignments across curricular areas.
- Use tools that graphically show time elapsing, such as a visual timer www.timetimer.com.
- Teach time awareness by having students estimate and then track how long it takes to complete tasks/assignments. Have students record their estimate, start/finish times, and compare upon completion. Allow use of electronic aids/tools for time management (e.g., vibrating alarms and watches, PDAs, Smart phones). Allow sufficient time for students to record assignments in planners before leaving class.
- Have students maintain a month-at-a-glance calendar as well as a daily planner.
- Extend deadlines for some students, if effort is shown. Provide copies of schedules for students' desk, notebook and/or locker. Play “time-estimation” games: Guess how long it takes to(walk to the main office and back).
- Check and initial the student's assignment calendar, sheet, or planner daily; and have parent/guardian do so, as well.
- With younger students, use a pictorial schedule that depicts the daily routine.
- For students who are receiving special education or related services, tape a copy of the week

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Attention/Persistence	
Definition: The ability to attend to a situation or a task and follow through in spite of competing interests or demands, distractions, fatigue, or boredom.	
Common Difficulties:	
<ul style="list-style-type: none"> • Fails to complete tasks on time • Stops before a task is finished, having difficulty maintaining attention to the end • Switches frequently between activities • Has difficulty listening to stories read aloud • Loses one's place easily while reading • Does not pick up important details in text • Is distracted by things happening around him/her when doing seatwork/homework • Cannot do more than one thing at a time • Has difficulty shifting focus between tasks, gets lost • Writing is disorganized • Does not consistently attend to math signs • Has difficulty completing long assignments, difficulty following timelines 	
Environmental Modifications - Elementary	Teaching Skills - Elementary
<ul style="list-style-type: none"> ○ Brief, clear instructions. ○ Have the child repeat/paraphrase instructions. ○ Post reminders throughout the room. ○ Immediate consequences. ○ Reward program for 1-2 weeks before punishment. ○ Frequent change (2-3 weeks) of reinforcers. ○ <u>Immediate</u> consequences. 	<ul style="list-style-type: none"> ○ Immediate consequences. ○ Student records productivity on the chart. ○ Self-Rating cards. ○ Motivator. ○ Non-verbal cues to attend. ○ Videotaping class behavior for review. ○ CHAMPS. ○ Teach vocal self-instruction.
Environmental Modifications - Secondary	Teaching Skills - Secondary
<ul style="list-style-type: none"> ○ Brief, clear instructions. ○ Have the child repeat/paraphrase instructions. ○ Post reminders throughout the room. ○ Immediate consequences. ○ Reward program for 1-2 weeks before punishment. ○ Frequent change (2-3 weeks) of reinforcers. ○ <u>Immediate</u> consequences. 	<ul style="list-style-type: none"> ○ Immediate consequences. ○ Student records productivity on the chart. ○ Self-Rating cards. ○ Non-verbal cues to attend. ○ Videotaping class behavior for review. ○ CHAMPS. ○ Teach vocal self-instruction.

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Self-monitoring (Meta-cognition)

Definition: The ability to accurately assess one's own behaviors, thoughts or emotions, and use that information to make adjustments, if needed.

Common Difficulties

- Does not check work for mistakes
- Makes careless errors
- Is unaware of how his/her behavior affects or bothers others
- Leaves work incomplete
- Talks or plays too loudly
- Problems monitoring pace and accuracy
- Work is sloppy
- Has poor handwriting
- Unaware of not following directions until someone points this out
- Has trouble adjusting what they are doing based on feedback or cues
- Is often surprised by low grade on test/project
- Difficulty analyzing errors to improve future performance

Environmental Modifications

- Provide opportunities for self-monitoring task performance and social behavior. Provide cues, as subtly as possible, if necessary.
- Build in editing or reviewing as an integral part of every task to increase error recognition and correction.
- Setting goals for accuracy rather than speed can help increase attention to errors. Reward for accuracy to support continued focus on monitoring of work.
- Work with the student to identify strengths and weaknesses for specific tasks or activities. Allow the comparison of proactivity prediction of performance with post-activity evaluation.

Teaching Skills

- Teach estimation skills what does task involve? How long will each step take? What road block might occur? Compare predicted time to actual time after task.
- Help the child identify the "triggers" for the problem behavior. It may be that the behavior of concern happens in a single situation, or it may pop up in several different situations. Determine if any of the triggers can be eliminated.
- Make a list of possible things the child can do instead of the problem behavior (i.e., replacement behaviors). This will vary depending on the nature of the trigger and the problem behavior.
- Practice the replacement behaviors, using role-playing or simulations. "Let's pretend you...Which strategy do you want to use?" Begin using the procedure in minor situations (i.e., not ones involving big upsets or major rule infractions). Then Move on situations where more intense behaviors occur.
- Connect the use of the procedure to a reward. For best results, use two levels of reward: a "big reward" for never getting to the point where replacement behaviors need to be used and a "small reward" for successfully using one of the agreed-upon replacement behaviors
- A coach (either an adult or a peer) works with a student to set goals (long-term, short-term, or daily) designed to enhance executive skills and lead to improved

- Daily coaching sessions are most successful in achieving goals.

Examples

- How to study for tests
- How to organize a writing assignment
- How to break down long-term assignments
- How to organize notebooks
- Have students share with each other their various approaches to solving problems.
- Build in self-reflection activities by having students record strategies they used (What was and was not helpful in their learning or behavior? What would they do differently next time?).
- Provide a rubric that describes expectations for assignments, including specific evaluation criteria.
- Have the student record and keep track of their grades on all assignments, quizzes and exams throughout the term.
- Have students chart/graph their growth on assessments of reading fluency (words correct per minute), word recognition, and math facts.
- Teach students to monitor their reading comprehension through strategies such as reading logs, recording questions or unfamiliar vocabulary on post-it notes while reading, summarizing and paraphrasing at stopping points in the text.
- Have students self-question (Did I understand this? What part does not make sense? Is this something important to remember?)
- Provide checklists of questions for students to use during various stages of the writing process (Revision: Have I given details/examples for each main idea?)
- Have students self-monitor a particular behavior by recording on a 1-4 scale how well they think they performed each day/period/or another time frame. (Did I follow teacher directions? Was I on-task?)
- Verbalize the thinking process—what goes on in your head when approaching

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self-regulation.

problems, and encourage students to do so.

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Initiation/Motivation

Definition: The ability to recognize when it is time to get started on something and begin without procrastinating, particularly those tasks which are tedious or of low interest.

Common Difficulties

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| <ul style="list-style-type: none"> • Is not a self-starter; does not take initiative • Needs to be told to begin a task, even when willing • Sits idle when directly asked to do something • Sometimes seen as lazy or unmotivated • Appears less spontaneous or less energetic than might otherwise be expected • When finally sits down to start task, does not know where to start | <ul style="list-style-type: none"> • Has several things to do, but does not know due dates or what needs to be completed the next day • Puts off projects, homework or chores until the last minute • Does not show creativity in solving a problem • Has problems coming up with different ways of solving a problem • Has trouble with planning and organizing • Can be so overwhelmed by everything that has to be done; does not do anything |
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| <ul style="list-style-type: none"> ○ Help the student get started on assignments by talking through the first few items/tasks. Provide scaffolds such as sentence starters and frames. ○ Use a visual or verbal prompt for the student to begin a task (a signal word, showing or tapping on a picture cue, setting a timer). ○ Praise or otherwise reinforce for promptly beginning a task. ○ Read directions together, have the student repeat in own words to ensure understanding of expectations before beginning assignments/tasks. ○ Divide the assignment/task into smaller, less overwhelming sections/steps to accomplish. ○ Set mini-goals of what is to be accomplished by the end of given time frame. Provide rewards when doing so. ○ Set a timer for a reasonable amount of time to begin assigned tasks after giving instructions (e.g., 1-2 minutes). When the timer goes off, positively reinforce the student for starting on time. ○ Simplify/condense instructions or make more concrete. (Helps children with working memory problems/language based LD). ○ Align target task/assignment to developmental/skill level so they can accomplish it. (Develops intrinsic motivation). | <ul style="list-style-type: none"> ○ Change the student's perception of the degree of a challenge by focusing on tasks that include child's interest/hobbies, offering choices, offering motivating rewards and/or meaningful praise for effort. ○ Use language that stresses effort. ○ Identify real strengths. ○ Demonstrate where to begin and what steps to follow to help overcome initiation difficulties. Demonstrate the first problem of a worksheet to help the student get started; parents can use similar prompts to get started on home tasks (homework, chores, etc.). ○ Use checklists for routines (morning routine can be broken down into steps) until it becomes automatic. ○ Peers can serve as models; students work in pairs or small groups. ○ Set time limits for completing tasks by using a timer to increase initiation and speed of task completion. ○ Increase energy level for tasks by incorporating physical activity, group interaction, and frequent short breaks with motor activity. ○ Provide examples or work samples for modeling what is expected. ○ Provide realistic opportunities for initiating a task and provide wait time for the student to retrieve plan/skills for task/activity. |
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Inhibition		
Definition: The ability to stop and think before acting; keeping responses proportional to the issue (not over- or under-reacting).		
Common Difficulties		
<ul style="list-style-type: none"> Needs to be told to stop doing something Interrupts others Is impulsive Gets out of seat when not appropriate Acts wild or 'out of control' more than friends Has trouble stopping actions <p>Acts before thinking of the consequences</p>		<ul style="list-style-type: none"> Speaks without reflecting Has trouble waiting for his/her turn Has to be closely supervised Is fidgety Blurts things out Does pleasurable things without considering prior obligations <p>Rushes through schoolwork, sacrificing accuracy</p>
Interventions/Strategies:		
<ul style="list-style-type: none"> Have the student repeat directions, restate in his/her own words before beginning tasks. Review the rules and expectations just before entering situations where difficulty typically occurs (e.g., "Tell me what you're working on"). Remind the student before entering challenging environments or situations about his/her expected behavior. Role-play and rehearse appropriate way to stand and wait in line and other situations which are problematic for a student with poor inhibition. Create a voice volume scale (0 = silence; 2-3 = partner talk). Use hand signals/other visual cues to indicate "wait" and "don't interrupt," wait cards. Teach and prompt the student to stop and think of consequences of inappropriate behaviors. Ask: "What do you think will happen if you continue to...?" "What should you be doing right now?" Discuss the importance of stopping, thinking, and planning before acting; verbally model how to do this. Have the child rate his or her performance to build self-evaluation skills. Teach self-monitoring strategies. Have the student keep a tally of the number of warnings received for a particular problematic behavior. Tally up at the end of day/class period with a goal for improvement. 	<ul style="list-style-type: none"> Use a daily or weekly behavior chart with rewards/incentives for demonstrating target behavioral goals (e.g., raises hand and waits to be called on). Practice delayed gratification tasks. Teach techniques to try to self-regulate impulsive behavior such as: student has an imaginary remote-control in his hand, and pushing a pause button on it, or taking a deep breath and counting silently to 10 before responding. Teach response inhibition routines/games (e.g., Simon Says, Red Light-Green Light) Teach replacement behaviors. Have the student practice the replacement behaviors in a classroom situation (either academic or social, as appropriate to the skill being taught.) Reinforcement. If using a reinforcement system, let the child participate in the decision about what and how the reinforcement system will work. Teach what to do, not what not to do Teach sequences (3-6 steps) Highlight visual detail/key information Prepare child for situations that require impulse control Coping skills (Teach "Plan B" when you are angry, sad, not feeling well, you can...) Sensory items to de-escalate, reduce anxiety, provide a distraction 	Environmental modifications <ul style="list-style-type: none"> Increase external controls, in other words, restrict access to settings or situations in which the child can get in trouble. A child who becomes overstimulated during physical education classes and has trouble following class rules may need close supervision during these classes. Children who have trouble keeping their hands to themselves or their bodies stationary during circle time benefit from sitting next to the teacher or an adult who can use nonverbal cues (e.g., a hand on the arm) to keep them settled. Increase supervision. Children with impulse control problems, particularly when they are young, often require more adult supervision in school settings. This is why the adult-to-student ratio is greater in preschools than in middle school. It is also why schools will sometimes assign individual aides to children. The physical presence of an adult in proximity to the child with impulse control problems acts as a cue for the child to exercise control. Find ways to cue the child to control impulses. This may include posting and reviewing class rules or stopping a child before he or she goes out to recess to ask. "What behavior are we working on?" to remind the child to exhibit self-control in specific situations (the child might say in answer to that question. "Not hitting when I get mad").

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Shifting/Flexibility	
<p><u>Definition:</u> The ability to adapt, adjust and/or revise one's thinking or actions in the face of obstacles, setbacks, new information, or mistakes.</p>	
<p><u>Common Difficulties:</u></p> <ul style="list-style-type: none"> • Cannot get a disappointment, scolding, or insult off his/her mind • Has trouble accepting a different way to solve a problem • Becomes upset with new situations • Acts upset by a change of plans • Is disturbed by a change of teacher or class • Thinks too much about the same topic • After having a problem will stay disappointed for a long time • Has trouble moving from one activity to another • Says the same thing over and over • Becomes frustrated when a first attempt to solve a problem isn't successful • Is unable to see new ways to do familiar tasks or to make another choice when the first choice proves unworkable • Has trouble when familiar routine is disrupted, or a task becomes complicated 	
<p>Environmental Modifications</p> <ul style="list-style-type: none"> ○ A child with difficulties shifting can often adjust to changes in schedule or routine with the use of visual organizers such as pictures, schedules, planners, and calendar boards. This will let the student know the order of activities for the day, and can alert him or her to variations in the usual sequence of events before they occur. ○ Displaying a daily schedule and reviewing it at the outset of the day can help a student anticipate the sequence of events and can serve as a useful reminder of any changes in his daily routine. ○ Gradually and incrementally introduce minor changes, one at a time. ○ Use a 2-minute warning alerting the student that one activity is about to end, and another will begin. Allowing a few minutes of "down time" or leisure activity between the end of one activity and the beginning of the next can also facilitate transitions. ○ Have students work in small groups or pairs with peers can help a student shift his focus or cognitive set. Peers can model that it is time to change, cuing the student by their behavior. ○ Decrease the speed, volume or complexity of information given at once. ○ Provide student with templates and rubric to follow. ○ Adapt open-ended tasks to close ended tasks. ○ Scaffolding assignments using visual supports. 	<p>Teaching Skills</p> <ul style="list-style-type: none"> ○ Working with two or three familiar tasks or preferred task and rotating them at regular intervals can build in the appearance of greater flexibility and help students become more accustomed to shifting. ○ Teach relaxation strategies, thought stopping, visual imagery. ○ Provide scripts than can be used in problem situation (social stories) ○ Teach student default strategies. ○ Teach brainstorming techniques ○ Teach frameworks for "walking through" new situations and changes (role-play) ○ Teach self-talk, as well as determining when to seek external assistance ○ Highlight changes and help the student build a bridge from what he/she knows to what he/she does not know.

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Emotional Control	
Definition: The ability to manage and self-regulate one's frustrations/emotions in order to achieve goals, complete tasks, or control and direct behavior.	
Common Difficulties: <ul style="list-style-type: none"> • Over-reacts to small problems • Has explosive, angry outbursts for little reason • Mood changes frequently • Reacts more strongly to situations than other children • Mood is easily influenced by the situation • Angry or tearful outbursts are intense, but may end suddenly • Has trouble accepting even constructive criticism or correction 	<ul style="list-style-type: none"> • Can't keep eyes on the goal when upsetting or unexpected things happen • Quick to call a situation "unfair" • Overreacts to losing a game or being called on in class • Has difficulty sticking with schoolwork when distressed about something • Has frequent tantrums • Becomes overly anxious
<ul style="list-style-type: none"> ○ Teach the use of positive self-talk such as: "I am calm and in control." "This is not a big deal. I can handle this situation." ○ Teach, model, and practice appropriate strategies for anger management, stress reduction, and conflict resolution. ○ Teach calming techniques (deep breathing, counting slowly, guided imagery, positive self-talk, yoga). ○ Avoid melt-downs by prompting the use of pre-taught calming techniques when needed. ○ Watch for warning signs of becoming over-stimulated or frustrated and intervene (diverting attention and redirecting, using cues/signals, reminding about rewards/consequences, assigning a silent or calm activity such as journaling or drawing). ○ Provide opportunities for the student to change environments and have an escape valve when becoming agitated, angry, or frustrated (e.g., a pass to library, bathroom, or guidance office). ○ Work out a private signal that the student can give when needing help or a break—and provide that support as quickly as possible. 	<ul style="list-style-type: none"> ○ Provide visual cue cards to remind the student of appropriate behaviors and steps to take when feeling upset/angry/frustrated. ○ Teach awareness of emotions by having students indicate on a scale of 1-10 how he/she feel at a particular moment. (My anger level is... My stress level is...). ○ Use a program for teaching social-emotional skills such as Why Try www.whytry.org ○ Provide notice of any upcoming changes in activities/ routines/schedules. ○ When the student shows signs of losing control: lower your voice, maintain a calm, patient tone, and offer choices (e.g., going to designated cool-down area). ○ Provide cues to signal upcoming transitions in activity (5-minute bell; playing a certain song). ○ Anticipate frustrating/anxiety-provoking situations and provide support.
Fluid Reasoning	
<p>Fluid Reasoning is the ability to the ability to think flexibly and problem solve. This area of reasoning is most reflective of what we consider to be general intelligence. Gifted students often have strong fluid reasoning skills.</p> <p>Specifically, fluid reasoning refers to the mental operations that an individual uses when faced with a relatively novel task that cannot be performed automatically. Fluid Reasoning includes nonverbal reasoning, sequential and quantitative reasoning, and categorical reasoning.</p>	

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<p>Sequential reasoning – the ability to start with stated rules, premises, or condition and to engage in one or more steps to reach a solution to a problem.</p> <p>Quantitative reasoning – the ability to inductively and deductively reason with concepts involving mathematical relations and properties.</p>	
Areas of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<p><u>General</u></p> <ul style="list-style-type: none"> • Difficulty understanding relationships between new concepts • Difficulty generalizing or making connections between new material and acquired knowledge • Limited problem-solving skills in new and everyday situations • Difficulties seeing the big picture and how things relate to each other • Problems understanding and evaluating opinions/views of others • Problems troubleshooting and figuring out how things work 	<p><u>General Strategies</u></p> <ul style="list-style-type: none"> • Explicitly teach multiple approaches to solving problems • Define relationships and connections between ideas in a concrete way • Provide analogies that the student can relate to • Provide opportunities to sort, classify, and categorize • Use teacher demonstrations with a think-aloud procedure followed by guided practice with feedback • Make use of graphic organizers to assist in unifying information and breaking information apart. • Teach problem-solving strategies • Use cooperative groups and reciprocal teaching to help with perspective taking and exposure to different problem-solving methods • Integrate visual and verbal information to enhance learning • Use a problem-solving planner that sequences the questions that need to be asked when approaching a problem
<p><u>Math</u></p> <ul style="list-style-type: none"> • Problems with a variety of concepts including number sense, estimation, fractions, integers, etc. • Difficulty in applying math skills in different areas • Difficulty with determining the best solution to a word problem • Difficulty representing a problem in an equation • Difficulty representing numbers or problems in a variety of ways 	<p><u>Math Strategies</u></p> <ul style="list-style-type: none"> • Model problem solving though talking aloud • Teach math mnemonic strategies that specifically identify the steps for solving problems • Teach patterns and relationships such as skip-counting or patterns on 100s chart to help learn multiplication facts • Attach number-line to desk to help with number sense and pattern recognition • Specifically teach the way a number or problem can be represented • Provide manipulatives to help make information concrete and less abstract • Have students explain their strategies when problem-solving to expand solving options • Require the student to show their work
<p><u>Reading/Reading Comprehension</u></p> <ul style="list-style-type: none"> • Poor inferential/predictive skills while reading 	<p><u>Reading/Reading Comprehension Strategies</u></p> <ul style="list-style-type: none"> • Use graphic organizers to help summarize information

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<ul style="list-style-type: none">• Weak ability to grasp the main idea• Struggles with evaluating a writer's point of view and purpose	<ul style="list-style-type: none">• Model self-monitoring skills while reading, demonstrating how to stop and ask oneself if material/words have been understood• Teach cues for identifying main ideas such as looking for transition words
<u>Writing</u> <ul style="list-style-type: none">• Struggles with the establishment of a purpose and perspective when writing.• Difficulty organizing thoughts in a manner that will effectively communicate ideas• Weaknesses within creative writing.• Difficulty taking the perspective of one's audience.	<u>Writing Strategies</u> <ul style="list-style-type: none">• Use graphic organizers to help sequence information for effective communication• Model brainstorming for generation of ideas• Explicitly teach about genres and writing to an audience• Present models of good writing with guidance in determining why the writing was effective for its purpose.
<u>Accommodations</u> <ul style="list-style-type: none">• Provide an outline of content to be covered in lesson• Adjust difficulty in the level of materials to student's ability level – concepts should be thoroughly explained with numerous examples.• Allot sufficient time for review and practice, as well as time to share and discuss ideas.• Check in with the student frequently to monitor comprehension.• Seat the student next to a peer helper.• Provide practice tests.	

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Definitions, Areas of Impact, and Recommended Strategies/Accommodations

**Verbal Reasoning and Knowledge
(Crystallized Intelligence)**

Verbal reasoning and knowledge generally reflect one's vocabulary and overall knowledge of the world. A variety of experiences and exposure to education influences development in this area.

Specifically, verbal reasoning and knowledge refers to the breadth and depth of a person's acquired knowledge of a culture and the effective application of this knowledge. It includes vocabulary development, verbal reasoning, language skills as well as the ability to listen, comprehend, and express oral communication.

Novel reasoning and problem solving; ability to reason, form concepts and solve problems that often include novel information or procedures. It is basic reasoning processes that depend minimally on learning and acculturation.

Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<p>General:</p> <ul style="list-style-type: none"> • Lack of background information to relate new material across subject areas • Weak vocabulary that will impact listening and comprehension skills • Difficulty remembering facts due to lack of ability to relate the new information to background knowledge • Gaps in skills across areas due to knowledge and acquisition being dependent on exposure to information or specific curriculum • Difficulty drawing inferences • Problems finding the main idea of passages • May provide off topic or "random" responses to questions • Difficulty generalizing ideas and vocabulary to new concepts • Difficulties with oral expression, including word retrieval and organization of thoughts • Difficulty using precise language to effectively communicate ideas 	<p>General Strategies:</p> <ul style="list-style-type: none"> • Repeat skills and vocabulary • Use mnemonics to help retrieve knowledge • Pre-teach vocabulary • Use a quick vocabulary book or reference wall • Relate information to prior knowledge • Chunk information • Create a language and experience rich environment (e.g., label items in the house, name sights on the road, talk through activities, etc.) • Systematically reach new vocabulary • Teach key verbs, such as those in the GCCC, that appear in questions (e.g., demonstrate, analyze, synthesize) • Provide specific vocabulary instruction such as the meaning of common prefixes, suffixes, and root words • Incorporate interests and prior knowledge areas into instructional activities • When presenting directions and discussing concepts, use vocabulary that is understood by the individual
<p>Math:</p> <ul style="list-style-type: none"> • Weaknesses in learning and identifying math vocabulary • Difficulty with word problems, in general, depending on the complexity of language used • Difficulty determining operations in word problems 	<p>Math Strategies:</p> <ul style="list-style-type: none"> • Teach math vocabulary • Convert story problems to visual representation • Teach synonyms for math vocabulary (e.g., sum=add=plus)

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| <ul style="list-style-type: none"> Problems understanding the relationships between number symbols and words Difficulty retrieving math facts due to the weaknesses in automatizing the relationship between numbers and words | |
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Crystallized Intelligence (continued)

<p><u>Reading/Reading Comprehension:</u></p> <ul style="list-style-type: none"> Limited vocabulary will impact comprehension in a variety of ways including inferencing, summarizing, grasping main idea, etc. Weak reading fluency because of poor word retrieval Poor comprehension due to limited vocabulary and integration of verbal concepts May respond inappropriately by providing an answer that does not match the question 	<p><u>Reading/Reading Comprehension Strategies:</u></p> <ul style="list-style-type: none"> Pre-Teach vocabulary Read for different purposes (including pleasure reading)
<p><u>Writing:</u></p> <ul style="list-style-type: none"> Poor vocabulary can result in redundant word use during writing Difficulty using expressive language Limited content due to lack of exposure to various resources and experiences 	<p><u>Writing Strategies:</u></p> <ul style="list-style-type: none"> Use word bank Use graphic organizers Model brainstorm activities
<p><u>Accommodations:</u></p> <ul style="list-style-type: none"> Provide copies of notes (during lecture to follow along or after class to supplement student notes) Provide outline or cloze notes for students to fill in. Preferential seating to enhance monitoring of comprehension Check in with the student to ensure comprehension to task demands Use organizers when writing or reading to help expressive skills and comprehension Provide study guides May need extended time for reading or writing tasks Rephrase instruction or questions Allow “think time” when responding to questions Use visual aids (e.g., story maps, formulas, etc.) Highlight key words or facts Ensure that test items do not include vocabulary which has not been or is not familiar to the student 	

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- Provide resources (create a language/vocabulary book) from which the student can draw information for discussion or written expression
- Provide oral communication that is individualized, clear, concise language, and vocabulary that is comprehensible

Memory	
Memory is the ability to store and recall information. Memory includes long-term, short-term and working memory.	
Short-Term Memory- The ability to recall information after a few seconds.	
Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<u>General:</u> <ul style="list-style-type: none"> • Difficulty remembering multi-step verbal directions • Problems remembering a series of information • Difficulty with the initial mastery of material • Difficulty with vocabulary development • Problems copying information • Weaknesses in transferring information from source to source • Difficulty answering questions directly from text • Problems writing dictated information 	<u>General Strategies:</u> <ul style="list-style-type: none"> • Deliver information in smaller unites or portions • Use multimodal presentation of information (visual, tactile, and auditory) • Use stepwise approach to studying • Use rehearsal strategies (e.g., rhymes, acronyms, anagrams, associations) • Model re-telling, paraphrasing and summarizing • Use lists, notes, checklist, or memory plans • Teach chunking strategies
<u>Accommodations:</u> <ul style="list-style-type: none"> • Allow the use of a number line or calculator • Provide copy of notes and outlines for notes • Write on tests or materials to eliminate transfer errors • Use repetition of instruction and information 	
Working Memory - Ability to temporarily store and perform a set of cognitive operations on information that requires divided attention and the management of limited capacity of short-term memory. It is a conscious process that involves the manipulation of information. Working Memory is one of the most fundamental processes in learning. Through working memory one connects input to output, as well as prior knowledge to new information. It thus affects one's ability to encode new information into long-term memory in all areas.	
Area of Difficulty/Academic Impact	Recommended Strategies
<u>General:</u> <ul style="list-style-type: none"> • Difficulty following multi-step directions • Failure to use strategies while studying • Difficulty paraphrasing and summarizing information • Difficulty with vocabulary development 	
<u>Math:</u> <ul style="list-style-type: none"> • Difficulty with multi-step problems • Weaknesses with keeping track of steps within math problems (e.g., 	<u>Math Strategies:</u> <ul style="list-style-type: none"> • Provide a stepwise plan to follow during multiple-step problem solving or procedures (e.g., during regrouping, division)

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<p>long division, equations)</p> <ul style="list-style-type: none"> Difficulties with mental math 	<ul style="list-style-type: none"> Verbalize while solving problems and summarize at strategic points Teach use of a number line or calculator Use mnemonic techniques (e.g., PEMDAS, Parentheses, Exponents, Multiply, Divide, Add, and Subtract for order of operations) Provide visual model of multi-step problem Explicitly teach a problem-solving model (e.g., QDPAC: Question, Data, Procedure, Answer, Check) Use visual organizers
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Memory (continued)

<p><u>Reading/Reading Comprehension:</u></p> <ul style="list-style-type: none"> Difficulty remembering sounds/words when decoding resulting in poor reading fluency Weak reading comprehension due to poor decoding skills which limit overall memory resources Low fluency due to poor monitoring of the context of words Problems with simultaneously remembering a comprehension question and integrating information from the passage 	<p><u>Reading/Reading Comprehension Strategies:</u></p> <ul style="list-style-type: none"> Encourage automatization of sound-symbol associations Build sight word vocabulary During reading comprehension tasks, use active reading techniques such as underlining, using a highlighter, re-reading, marking important parts, writing on margins of books, using sticky notes while reading, reading to a tape recorder and listening to what was read) Review prior knowledge before teaching new information Check for comprehension at strategic points Have students take turns making/asking questions and responding to questions about material being taught Use graphic organizers Model self-monitoring for comprehension
<p><u>Writing</u></p> <ul style="list-style-type: none"> Difficulty tracking what the student is writing Problems organizing thoughts in writing Problems integrating organization and grammar Difficulties sequencing ideas 	<p><u>Writing Strategies:</u></p> <ul style="list-style-type: none"> Use graphic organizers Have word bank available Use a tape recorder to record ideas before writing them Teach self-monitoring for organization and grammar Assistive technology-draft builder, co-writer
<p><u>Accommodations:</u></p> <ul style="list-style-type: none"> Allow for use of a calculator, written formulas, or math fact list to decrease the student's need to rely on mental computations Have fewer problems to complete, focusing on accuracy Allow the use of a word processor for easier editing Provide visual/written output of lectures so that the student can follow along and take additional notes Allow students to create a 'cheat sheet' to be used during various assessments. 	

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- Attention cues, simplify directions & explanations; concept maps, color code, parallel assignments, books on tape, copy of notes, written and verbal assignments and directions.

Long-Term Memory and Retrieval

Memory is the ability to store and recall information. Memory includes short-term, long-term, and working memory.

Ability to store information and fluently retrieve new or previously acquired information from long-term memory. Includes the ability to absorb newly presented information and to demonstrate subsequent acquisition of such information.

Long-Term Memory –The ability to take and store a variety of information (ideas, names, concepts) in one’s mind, then later retrieve it quickly and easily using association.

Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<p><u>General:</u></p> <ul style="list-style-type: none"> • Perform poorly when reviewing past material • Perform poorly when asked to complete a variety of problems on several different concepts • Can’t easily retrieve needed information from long-term memory • Forgets steps in algorithms such as long division, and have a hard time when solving multi-step word problems • Have difficulties placing information in short-term memory and thus have problems later retrieving it from long-term memory • Weaknesses in transferring information from source to source • Have difficulties in matters related to time • Might do well on daily quizzes but has difficulty passing chapter exams containing these materials. • Difficulty remembering the writing process • They understand new information in class but are uncertain how to proceed once they leave class. 	<p><u>General Strategies:</u></p> <ul style="list-style-type: none"> • Provide over-learning • Provide review and repetition • Provide immediate feedback • Teach memory aids – Use rehearsal strategies (e.g., rhymes, acronyms, anagrams, associations) • Provide a list of steps that will help organize behavior and facilitate recall • Use lists, notes, checklists, or memory plans • Teach chunking strategies • Teach mnemonic strategies • Provide multi-sensory learning • Use visual, kinesthetic, vocal, and auditory channels, as appropriate • Provide context and meaning based instruction • Limit the number of new facts, words, and concepts in one session
<p><u>Accommodations:</u></p> <ul style="list-style-type: none"> • Limit the amount of information to be learned during an instructional session • Provide reference sheets • A calculator during math computation • Employ test formats that require recognition in favor of test formats that require recall • Emphasize concepts understood instead of memory for rote information in grading rubrics • Provide source of external memory 	

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- Check to ensure that the student has retained sufficient information to work independently

Visual Processing

Visual processing refers to the manipulation and memory of what we see-not actual vision but problems in the processing of visual information by the brain. Visual processing is the ability to generate, perceive, analyze, synthesize, store, retrieve, manipulate, transform, and think with visual patterns. Visual processing includes understanding spatial relations, perceptual integration, spatial perception, figure-ground discrimination, and visual discrimination.

Visual discrimination- the ability to differentiate objects based on their individual characteristics.

Perceptual integration (part/whole relationship)- perceiving or integrating the relationship between an object or symbol in its entirety and the parts which make it up.

A variety of skills associated with academics require a spatial understanding of quantity, direction, interval, shape, location, size, direction of movement, sequence, and scale. These include mathematics, spelling, punctuation and capitalization, mapping, understanding time, drawing, copying, ordering, changing point of view, and handwriting.

Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<p>General:</p> <ul style="list-style-type: none"> • Difficulty misunderstanding or confusing written symbols • Problems with being easily distracted by competing visual information • Difficulty judging distances (e.g., bumping into things, placing objects too close to an edge) • Difficulty fluidity of movement (e.g., getting out of the way of a moving ball, knocking things over) • Trouble differentiating colors or similarly shaped letters and numbers • Difficulty identifying information from pictures, charts, graphs, maps, etc. • Weaknesses organizing information from different sources into one cohesive document • Difficulty finding specific information on a printed page (e.g., getting a number out of the phone book) • Problems remembering directions to a location • Weaknesses in recalling non-verbal experiences • Difficulty remembering an item, picture, symbol once it has been 	<p>General Strategies:</p> <ul style="list-style-type: none"> • Provide activities designed to develop discrimination of visual features (e.g., Where's Wally? find the odd one out, find the hidden object, circle the same word in a text, word searches, find words with beginning with "t", ending with "ing" or containing "ou") • Give examples and point out the important details of visual information • Teach the cognitive-behavioral interventions of private speech (refer to SLP for suggestions) • Partially cover a picture and ask the student to identify the whole • Encourage the student to verbalize what he/she has seen (e.g., remembering routes around school may be easier if he/she has a verbal description in his head) • Model visual memory skills by showing the student a picture or card and asking them to remember what is on it. Remove it from view and ask for a detailed description of it or ask specific questions about the picture

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<p>removed from view</p> <ul style="list-style-type: none"> • Problems remembering the orientation of numbers or letters • Difficulty perceiving words and numbers as separate units. • Problems with directionality in reading and math • Confusion of similarly shaped letters, such as b/d/p/q • Difficulty ignoring irrelevant stimuli • Difficulty putting parts together to form a whole, e.g., maps, three-dimensional objects • Reversals when writing 	
Visual Processing (continued)	
<p><u>Math:</u></p> <ul style="list-style-type: none"> • Difficulty sequencing ideas • Weaknesses in organizing and solving math problems • Trouble with mathematical concepts related to understanding of size • Problem perceiving numbers as separate units. • Problems telling time. • Difficulty with geometry • Problems understanding fractions and part to whole relationships. • Difficulty perceiving individual numbers accurately. • Difficulty with regrouping or performing operations with multiple digits. 	<p><u>Math Strategies:</u></p> <ul style="list-style-type: none"> • Teach the student to verbalize the math problem. • Use graph paper to aid in aligning numbers. • Color coding.
<p><u>Reading/Reading Comprehension:</u></p> <ul style="list-style-type: none"> • Difficulty finding and retaining important information in reading assignments or tests. • Difficulty reading with speed and precision. • Problems blending letters into words visually. • Problems perceiving individual letters or words accurately. • Weaknesses in noticing all the relevant words in a question, identifying key words or developing “skim and scan” skills. • Although they may be able to read the individual letters, they may struggle to put letters together to form words. • Problems skipping lines of text. • Difficulty tracking from left to right. • Difficulty tracking (keep your space) while reading. 	<p><u>Reading Strategies:</u></p> <ul style="list-style-type: none"> • Teach student common visual patterns within words (e.g., prefixes and suffixes) • Teach <u>the</u> student to key in on headings within texts.
<p><u>Writing:</u></p>	<p><u>Writing Strategies:</u></p>

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<ul style="list-style-type: none"> • Trouble staying within margins or on lines. • Problems copying from the board or books. • Difficulty writing neatly and quickly • Difficulty with spacing. • Difficulty organizing written work. • Weaknesses in labeling diagrams. • Problem recognizing spelling patterns. 	<ul style="list-style-type: none"> • Teach proof-reading strategies (e.g., COPS) or use a proof-reading buddy. • Before writing letters or essays create an outline to simplify and organize ideas. • Color code.
<p><u>Accommodations:</u></p> <ul style="list-style-type: none"> • Use books, worksheets and other materials with enlarged print. • Allow the student to write answers on the same sheet of paper as the questions or offer opportunities for the student to explain answers orally. • Provide a tape recorder to supplement note-taking. • Reduce the amount of visual information on a page. • Use color-coding of materials. • Provide repeated exposures to printed visuals. <p><u>Visual Processing Accommodations (continued):</u></p> <ul style="list-style-type: none"> • Provide graph paper for math problems to help with aligning problems. • Color code important information. • Read written directions aloud. • Provide paper for writing that has darker or raised lines to make the boundaries more distinct. • Use a tracking tool as a reading guide (to keep the focus on one line at a time) and a highlighter (immediately emphasize important information). • Template to isolate sentences or paragraphs in the text; color overlays; minimize the number of written problems; orally assess student; copy of notes; use a larger font on Smart Board; preferred seating; increase white space on paper; concept maps; verbal and written directions. 	
<p>Spatial perception – refers to the ability to accurately perceive objects in space with reference to other objects. It is the ability to discriminate right from left, top to bottom, and so on.</p> <ul style="list-style-type: none"> • Lose their place while working on a worksheet or when reading a text. • Hinders their ability to write in a straight line across the paper. • Impacts the directional aspects of mathematics such as the ability to solve problems involving single-digit addition (up-down), regrouping (left-right), the alignment of numbers, or using a number line. • May have trouble with the concept of fractions as well as writing them, writing decimals, and find it hard to discern differences in size or shape. 	
<p>Figure-ground - is the ability to identify an object from a background of other objects.</p> <ul style="list-style-type: none"> • These students lose their place on a page. • Mix up parts of different problems. • Have difficulty reading a calculator. • Difficulty reading multi-digit numbers 	

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Definitions, Areas of Impact, and Recommended Strategies/Accommodations

- Difficulty copying symbols correctly.

Visual discrimination – the ability to discern similarities and differences when comparing letters, numbers, and other objects. This includes distinguishing among common objects and symbols, color, form, shape, pattern, size, and position, as well as the ability to recognize an object as distinct from its surrounding environment.

- Can cause students to have trouble identifying the symbol.
- Difficulty gaining information from pictures, charts, graphs/
- Difficulty using visually presented material in a productive way; trouble reading text, worksheet, or tests, with too much information on one page.
- Slow processing speed.
- They may not be able to tell the difference between a quarter and a nickel, the numbers 6 and 9, and the small and big hands on a clock.
- These issues can result in interference with many mathematics skills such as measurement, estimation, problem-solving, and geometry.
- Overall: Difficulties reading out loud; lose their place in the text; will combine unrelated parts of sentences; copies problems or assignments incorrectly from the board; difficulty when taking math quizzes/tests – often uses information from one problem coupled with information from another problem on the same page to answer a question; when setting up a number problem, they will often misalign numbers.

Reversals: Two types – 1) student reverses digits or letters, creating a mirror image of a single digit; 2) when a student reverses the digits of a two-digit number.

- Can cause problems with regrouping and transposing digits or letters.

Auditory Processing

Ability to perceive, analyze, and synthesize patterns among auditory stimuli and to discriminate subtle nuances in patterns of sound and speech when presented under distorted conditions. It does not apply to what is received by the eardrum or to deafness or being hard of hearing.

Auditory processing includes phonological awareness, resistance to auditory stimulus distortion, and memory for sounds.

Phonological Awareness - Ability to break apart and blend sounds in words.

Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<p>General:</p> <ul style="list-style-type: none"> • Difficulty understanding what is said • Articulation errors • Inability to hear different sounds in words would affect reading and spelling. Difficulty making out the teacher's voice against the background noise from other students and difficulty discriminating between sounds of spoke number in class • Difficulty paying attention in class • Difficulty hearing the teacher when other students are shuffling their papers, opening their notebooks, or making other noises 	<p>Strategies:</p> <ul style="list-style-type: none"> • Expose children to sounds, music, rhythms, and language. • Read aloud to the child • Read books that use a lot of rhyming words • Provide opportunities to explore and manipulate sounds, words, and language • Use decodable texts for daily practice • Listen to books on tape • Assistive technology for electronic reader (read out loud, start to finish, Bookshare)

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

<ul style="list-style-type: none"> • Difficulty remembering an assignment or task when told to orally • Oral drills are challenging for these students • Difficulty learning vocabulary presented orally • Slow processing speed 	
<p><u>Reading/Reading Comprehension:</u></p> <ul style="list-style-type: none"> • Inability to hear different sounds in words affects one's ability to assign sounds to letters (decoding). • Difficulties with Phonological Awareness activities-rhyming, alliteration, imitation, songs. 	<p><u>Reading/Reading Comprehension Strategies:</u></p> <ul style="list-style-type: none"> • Provide Elkonin boxes (boxes that have the shape of letters for students to fill in). • Emphasize sound-symbol associations in teaching decoding and spelling. • Use explicit, systematic, synthetic phonics instruction. • Use a whisper box to allow the student to hear their own reading. • Use direct phonics instruction. • Example programs: <i>Foundations; Just Words; Road to the Code; Read, Write, Type; Wilson Reading; Explode the Code; Language!; REWARDS-multisyllabic words; multisyllabic words.</i>
<p><u>Writing:</u></p> <ul style="list-style-type: none"> • Difficulty assigning sounds to letters hinder the development of accurate spelling. • Difficulty with any type of dictation across all subject areas. 	<p><u>Writing Strategies:</u></p> <ul style="list-style-type: none"> • Provide drill and practice for memorizing the spelling of words. • Use Cover, Copy, and Compare strategies. • Teach spelling using word groups and sorts.
<p><u>Math:</u></p> <ul style="list-style-type: none"> • Difficulty with using ordinal numbers. 	

Auditory Processing (continued)

<p><u>Accommodations:</u></p> <ul style="list-style-type: none"> • Allow the student to use books on tape/assistive technology/electronic reader, start to finish, book share. • Check for comprehension after group directions are given. • Provide a well-managed classroom with control of extraneous activities that create auditory distractions and competing background noise. • Preferential seating that supports monitoring of student comprehension. • Provide a peer assistant or buddy to provide information when the student did not understand an oral communication. • Provide a modified spelling list. • Use computer spell check. • Provide student guides for listening activities. • Provides assistance with note taking. • Accompany oral information with visual materials. • Read tests aloud to the student.

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

<ul style="list-style-type: none"> Place marker or visual template. Use slow rate of speech, appropriate language/vocabulary, a copy of notes, attention cues, mnemonics, extra time, tape recorder, provide both written and verbal directions, simplify directions, concept maps, and frequent feedback. 	
Resistance to Auditory Stimulus Distortion- Ability to understand speech and language that has been distorted or masked in one or more ways.	
Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
General: <ul style="list-style-type: none"> Difficulty filtering out background noise. Problems understanding directions in lunch room, hallway, and playground. Difficulty in group work when more than one person is talking. 	Accommodations: <ul style="list-style-type: none"> Provide a quiet environment. Allow only one person to speak at a time. Require the student to repeat directions back to you.
Memory for Sounds – Ability to remember tones, patterns, and voices for short periods of time.	
Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
General: <ul style="list-style-type: none"> Difficulty remembering words and sounds within words. Poor spelling. Difficulty learning math facts due to impairment in the ability to remember and retrieve information stored in a verbal format. 	General Strategies: <ul style="list-style-type: none"> Use multimodal presentation of information (visual, tactile, auditory). Use rehearsal strategies (e.g., rhymes, acronyms, anagrams, and associations). Model re-telling, paraphrasing and summarizing. Use lists, notes, checklist, or memory plans. Teach chunking strategies.
Accommodations: <ul style="list-style-type: none"> Allow the use of a number line or calculator. Provide a copy of notes. Write on tests or materials to eliminate transfer errors. Use constant repetition of instruction and information. Deliver information in smaller units or portions. 	
<p style="text-align: center;">Long-Term Storage</p> <p>Long-term storage refers to the ability to remember information and procedures that are used at some point after they are immediately taught.</p> <p>Ability to store information and fluently retrieve new or previously acquired information from long-term memory. Includes the ability to absorb newly presented information and to demonstrate subsequent acquisition of such information.</p>	
Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
General: <ul style="list-style-type: none"> Difficulty storing (encoding) and retrieving information 	General Strategies: <ul style="list-style-type: none"> Frequent review of information/facts

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

<ul style="list-style-type: none"> • Difficulty retaining and retrieving information over time • Weak performance on classroom examinations • Problems with idea production, ideational fluency, associative fluency, and generation of a response • Difficulty relating and linking information together • Slow acquisition of new skills 	<ul style="list-style-type: none"> • Pair new concepts or information to be learned with meaningful stimuli or overlearned material • Use mnemonic devices • Associated information with prior experiences and known information
<u>Math:</u> <ul style="list-style-type: none"> • Poor recall of basic math facts. • Poor recall of mathematics procedures. 	<u>Math Strategies:</u> <ul style="list-style-type: none"> • Encourage use of a number line. • Teach mnemonics for math procedures. • Teach multiple strategies for calculating math facts. • Teach Touch Math. • Encourage the repetition of math facts through flashcards and computer programs.
<u>Reading/Reading Comprehension:</u> <ul style="list-style-type: none"> • Weaknesses remembering letter-sound associations. • Difficulty relating the material to previous knowledge, impairing reading comprehension. • Recall of sight words. 	<u>Reading/Reading Comprehension Strategies:</u> <ul style="list-style-type: none"> • Help the student associate information with prior experiences and known information. • Focus on overlearning sight words.
<u>Writing:</u> <ul style="list-style-type: none"> • Poor memory for spelling. • Difficulty coming up with ideas for writing. 	<u>Writing Strategies:</u> <ul style="list-style-type: none"> • Provide topic lists to aid pre-writing brainstorming activities. • Use structured organizers to aid in connecting multiple ideas. • Help the student associate information with prior experiences and known information.
<u>Accommodations:</u> <ul style="list-style-type: none"> • Provide extended time on tests and completion of classroom tasks. • Present questions before expecting a response. • Give student cheat sheet of frequently used equations. • Provide a word bank rather than require free recall of information. 	
<p style="text-align: center;">Processing Speed</p> <p>Processing Speed is how quickly one can perform cognitive tasks.</p> <p>Ability to fluently and automatically perform cognitive tasks, especially when under pressure to maintain focused attention and concentration. Processing speed may include decision speed, rapid naming, and psychomotor speed.</p>	

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

Psychomotor speed: movements of the body associated with mental activity.	
Area of Difficulty/Academic Impact	Recommended Strategies and Accommodations
<u>General:</u> <ul style="list-style-type: none"> • Slow in completing classwork and tests • Incomplete homework or tests • Difficulty working quickly and efficiently • Slower work rate • Difficulty responding to questions due to lag time • Lacks automaticity of rote information • Poor work completion • Difficulty scanning and quickly determining important information on a page • Slow decision-making skills due to inability to free working memory 	<u>General Strategies:</u> <ul style="list-style-type: none"> • Allow time to respond orally or prepare student with question before calling on them • Self-monitoring strategies that focus students set goals and rate their success related to timely completion of tasks • Explicitly teach students to increase speed and use concrete measures of progress using charts and graphs
<u>Math:</u> <ul style="list-style-type: none"> • Difficulty working problems quickly on paper. • Slow mental math skills. • Low fluency related to math facts. 	<u>Math Strategies:</u> <ul style="list-style-type: none"> • Use repetition of facts. • Use computerized math programs that focus on increasing the automaticity of math facts. • Practice with math facts using flashcards and incremental rehearsal of facts • Use speed drills.
<u>Reading/Reading Comprehension:</u> <ul style="list-style-type: none"> • Poor reading fluency due to slow rapid naming skills. • Slow word retrieval. • Slow response time. • Weak reading fluency impacts comprehension of text. 	<u>Reading/Reading Comprehension Strategies:</u> <ul style="list-style-type: none"> • Model fluent reading by reading aloud. • Use choral reading. • Practice with sight words using flashcards and incremental rehearsal of facts. • Use repeated reading of texts (3-5 times). • Encourage rereading of a text until speed criteria is met. • Encourage a student to read two sentences/paragraphs and have the following student read the last sentence/paragraph read along with a new one. • Utilize speed drills. • Preview reading materials. • Use books on tape to address fluency weaknesses • <i>Example programs: Read Naturally, Great Leaps, Quick Reads, Read out Loud, Start to Finish.</i>
<u>Writing:</u>	<u>Writing Strategies:</u>

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

- Slow writing skills (motorically)
- Struggles to quickly organize and complete written tasks.
- Low writing output.
- Resistance to writing tasks.

- Use short speed drills that emphasize output over grammar, spelling, and punctuation.
- Speech Recognition software.

Accommodations:

- Access to a word processor.
- Provide books on tape.
- Provide oral directions.
- Provide copies of notes, formatted with only key words need to be added.
- Provide extended time.
- Reduce the quantity of work in favor of quality.
- Shorten or chunk assignments (e.g., odds or evens, fold the paper in half, etc.).
- Use a timer to increase self-monitoring of output and speed of completion.
- Reduce and structure the amount of copying required from a book or board.
- Provide high-interest books on student's reading level.
- Provide resource folder.

Note: Cognitive Efficiency has to do with both Processing Speed and Working Memory and will determine how much and how efficiently a student will process information and thus learn it.

Motor

Motor skill deficiencies interfere with the ability to use and coordinate large and small body muscles to move and manipulate objects.

- Work often looks sloppy as if it was completed quickly and without much effort
- Inability to write clearly interferes with accuracy so written work may not reflect understanding
- Difficulties writing in small spaces
- Become fatigued after writing
- Pace, neatness, and copying are problematic

Accommodations/General Strategies:

- Minimize the number of written problems
- Orally access student information
- Provide copy of notes
- Provide graph paper
- Extra time
- Tape recorder

Cognitive Functioning and Psychological Processing
Definitions, Areas of Impact, and Recommended Strategies/Accommodations

- Increase white space
- Assistive technology- speech recognition software

Expressive Language

Expressive language is the production of language that is understood by and meaningful to others.

Difficulties:

- Inability to complete rapid oral drills
- Difficulty counting
- Difficulty explaining their thoughts orally
- Difficulty explaining how to complete a problem orally
- Uses incorrect grammar or syntax
- Lacks specificity
- Jumps from topic to topic
- Has limited use of vocabulary
- Difficulty finding the right word to communicate
- Uses social language poorly
- Is afraid to ask questions
- Has difficulty discussing abstract, temporal, or spatial concepts
- Often does not provide enough information to the listener

Accommodations/General Strategies:

- Concrete or pictorial representations
- Minimize the number of written problems and/or written assignments
- Provide copy of notes
- Extra time
- Increase writing space
- Require written and verbal communication
- Assistive technology – Draft Builder, Co-Writer

Receptive Language

Receptive language is the ability to understand what is meant by spoken communication.

Difficulties:

- Difficulty relating words to meaning (connecting vocabulary words with an understanding of mathematical concepts, such as first and greater than)
- Difficulty with words that have multiple meanings
- Difficulty with writing notes or problems from dictation
- Difficulty following oral directions

Cognitive Functioning and Psychological Processing

Definitions, Areas of Impact, and Recommended Strategies/Accommodations

- Difficulty solving word problems
- Become confused when irrelevant information is included in word problems
- Difficulty reading due to lack of comprehension of vocabulary
- Does not respond to questions appropriately
- Cannot think abstractly or comprehend abstractions as idioms
- Cannot retain information presented verbally
- Cannot recall sequences of ideas presented orally

Receptive Language

Difficulties (continued):

- May confuse the sounds of letters that are similar.
- Has difficulty understanding humor or figurative language.
- Has difficulty comprehending compound and complex sentences.
- Has difficulty comprehending concepts showing quantity, function, comparative size, and temporal and spatial relationships.

Accommodations/General Strategies:

- Concrete or pictorial representations
- Slow rate of speech
- Use of appropriate language/vocabulary
- Structured environment
- Variety in lessons
- Mnemonics
- Extra time
- Tape recorder
- Written and verbal assignments and directions
- Copy of notes
- Simplify directions and explanations
- Analogies, concepts maps, written and verbal communication
- Frequent feedback
- Color coded

Information taken from Cobb County and adaptive by MCS 2012.